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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
LIN, KENNY S	

ART UNIT	PAPER NUMBER
2152	

DATE MAILED: 05/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/939,558	YIM, UI-SUK	
	Examiner	Art Unit	
	Kenny Lin	2152	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 February 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-28 are presented for examination.

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/22/2005 has been entered.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-5, 8-9, 13, 15-20 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Irish, US 6,757,281, in view of Kloth, US 6,208,649.

5. As per claim 1, Irish teaches the invention substantially as claimed including a communication method among a plurality of virtual local area networks (VLANs), each VLAN having a number of hosts, comprising:

a. broadcasting a first address resolution protocol (ARP) request (Col. 2, lines 35-40, wherein the broadcast messages utilized for the present invention are ARP requests) packet transmitted from a source host of the number of hosts to a source VLAN of the plurality of VLANs (Col. 8, lines 12-23; Fig 1,wherein the router server item 1010 performs address resolution between different networks and VLANs) (Col. 2, lines 25-30; Col. 6, lines 5-15);

b. transmitting a first ARP response packet, responding to the first ARP request packet, to the source host and broadcasting a second ARP request packet to a destination VLAN of the plurality of VLANs in which a destination host addressed by the first ARP request packet is included (Col. 7, lines 32-50,. Col. 8, lines 12-22, wherein the broadcast reply resolution is within the same VLAN and broadcasted within the same VLAN); and

c. receiving a second ARP response packet from the destination host (see for example, Col. 8, lines 13-20, wherein the router server is broadcasting remotely in order to obtain address information of the destination node, in response to this broadcast, the destination nodes responds).

d. Transmitting a unicast packet originating from the source host to the destination host using a media access control (MAC) address of the destination host that is included in the received second ARP response packet (see for example, Col. 8, lines 12-49, wherein the unicast by definition is a point to point transmission of data between a single client and server, upon the discovery of destination MAC address as supplied by the second ARP request, the host now equipped with the

destination MAC no longer need to go through the ARP phases, the host would proceed to transmit plurality of packets to the destination via point to point access, the above is a description of Fig 2, items 2030, 2040, 2050, 2060, 2070, and 2080).

6. Irish did not specifically teach that the plurality of VLANs belong to the same Internet Protocol (IP) subnet. Kloth taught that the plurality of VLANs can belong to the same Internet Protocol (IP) subnet using a known solution of classifying VLANs on-the-fly (col.4, lines 44-66). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Irish and Kloth and configure a plurality of VLANs under the same IP subnet to support multi-protocol switching.

7. As per claim 2, Irish and Kloth teach the communication method substantially as claimed in claim 1. Irish further teaches that the method further comprises configuring the plurality of VLANs by configuring a MAC table and a routing table so that the plurality of VLANs are allocated to the same IP subnet, a plurality of ports of a switching router are allocated to the plurality of VLANs, and the respective number of hosts included in each of the plurality of VLANs are mapped to the corresponding allocated plurality of ports (Col. 8, lines 13-49; Fig 1, wherein the switch router contains routing tables and port information, proper mapping connection is expected upon discovery of destination host. During this sample section, we can see that the address map of corresponding destination client is being updated on the switch router).

8. As per claim 3, Irish and Kloth teach the communication method substantially as claimed in claim 1. Irish further teaches that broadcasting the first ARP request packet to the VLAN in which the source host is included, further comprises:

a. identifying the source VLAN, based on a MAC source address included in the first ARP request packet (Col. 7, lines 30-50); and

b. broadcasting the first ARP request packet to a number of source ports of a switching router, which are allocated to the source VLAN (Col. 7, lines 30-50).

9. As per claim 4, Irish and Kloth teach the communication method substantially as claimed in claim 3. Irish further teaches that the number of source ports is variably determined in accordance with the number of hosts connected to one VLAN of the plurality of VLANs (Fig 1, wherein each subnetwork can be configured as a VLAN).

10. As per claim 5, Irish and Kloth teach the communication method substantially as claimed in claim 1, Irish further teaches broadcasting the second ARP request packet further comprises:

a. generating the first ARP response packet in response to the first ARP request packet (wherein the ARP inherently teaches of generating request after receiving the broadcast messages);

b. transmitting the generated first ARP response packet to the source host (Col. 7, lines 30-56);

c. generating the second ARP request packet for finding out the MAC address of the destination host identified by the first ARP request packet (wherein the 2 ARP request is used for remote VLAN address resolution);

d. identifying the destination VLAN in which the destination host is included (Col. 8, lines 10-24); and

e. broadcasting the second ARP request packet to all destination ports of a plurality of switching router ports allocated to the destination VLAN (Col. 8, lines 13-22).

11. As per claim 8, Irish and Kloth teach the communication method substantially as claimed in claim 5. Irish further teaches identifying the destination VLAN in which the destination host is included further comprises:

a. reading an IP address of the destination 'host from the first ARP request packet;

b. identifying a source port, of a switching router, mapped on the IP address of the destination host; and

c. identifying the source port allocated to the source VLAN (Fig 1.* Col. 7, lines 30-50,. Col. 8, lines 12-25, wherein the switch router would have the proper port information for the host and the IP address of destination, because upon discovery of appropriate destination node, the system would no longer be in broadcast mode and would be source to destination type unicast environment).

12. As per claim 9, Irish and Kloth teach the communication method substantially as claimed in claim 1. Irish further teaches that transmitting the unicast packet to the destination host further comprises:

a. receiving the second ARP response packet from the destination host;

b. storing the MAC address of the destination host included in the received second ARP response packet;

c. receiving a first unicast packet from the source host; and

d. generating a second unicast packet based on the first unicast packet and transmitting the second unicast packet to the destination host (Col. 8, lines 12-50).

13. As per claim 13, claim 13 is rejected for the same reasons ms rejection to claim 1 above.

14. As per claim 15, Irish teaches the invention substantially as claimed including a communication method among a plurality of virtual local area networks (VLANs), comprising:

a. broadcasting an address resolution protocol IARPI request packet to communicate with a destination;

b. host that belongs to the same IP subnet ms a source host, but belongs to a different VLAN of the plurality of VLANs t.11m1 the source host (Col. 7, lines 31-50,. Col. 8, lines 10-23), the plurality of VLANs belong to the same Internet Protocol (IP) subnet, (Col. 2, lines 25-30; Col. 6, lines 5-15);

c. informing the source host of a media access control (MAC) address of a switching router, using a communication from the switching router provided in response to the ARP request packet (see for example, Col. 7, lines 40-55);

d. obtaining the MAC address of the destination host by broadcasting the ARP request packet from the switching router to a second VLAN of the plurality of VLANs, in which the destination host is included (Col. 8, lines 1-24);

e. transmitting to the switching router a first data packet to be transmitted to the destination host by the source host, via the switching router (Col. 8, lines 30-50); and

f. transmitting the received first data packet from the switching router to the destination host using the MAC address of the destination host (col. 8, lines 30-50, wherein the MXC address is encapsulated from one hop to the next hop on the data network).

15. Irish did not specifically teach that the plurality of VLANs belong to the same Internet Protocol (IP) subnet. Kloth taught that the plurality of VLANs can belong to the same Internet Protocol (IP) subnet using a known solution of classifying VLANs on-the-fly (col.4, lines 44-66). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Irish and Kloth and configure a plurality of VLANs under the same IP subnet to support multi-protocol switching.

16. As per claim 16, Irish and Kloth teach the communication method substantially as claimed in claim 15. Irish further teaches to comprise:

a. transmitting to the switching router a second data packet to be transmitted to the source host from the destination host, via the switching router (Col. 8, lines 30-50); and

b. transmitting the second data packet from the switching router to the source host using the MAC address of the source host (Col. 8, lines 30-50, wherein the transmission of data packets are bi-directional, and in accordance of Fig 1, the switching router is in the way of source and destination node, thus, encapsulation between two nodes on the network is a must on a hop by hop basis).

17. As per claim 17, Irish and Kloth teach the communication method substantially as claimed in claim 15. Irish further teaches that the source host knows the MAC address of a corresponding port of the switching router to which the source host is connected, but does not know the MAC address of the destination host (Fig 1, Fig 2, item 2030).

18. As per claim 18, Irish and Kloth teach the communication method substantially as claimed in claim 15. Irish further teaches that the destination host knows the MAC address of a corresponding port of the switching router to which the destination host is connected, but does not know the MAC address of the source host (Fig 1; Fig 2, item 2030).

19. As per claim 19, claim 19 is rejected for the same reasons as rejection to claims 1 and 16 above.

20. As per claim 20, claim 20 is rejected for the same reasons as rejection to combination of claims 1 and 3 above.

21. As per claim 28, claim 28 is rejected for the same reasons as rejection to claims 1 and 15 above.

22. Claims 6-7, 10-12, 14, 21-27 are rejected under 35 U.S.C. 103(a) ms being unpatentable over Irish, US 6,757,281, in view of Rodrig et al. (hereinafter Rodrig), US 6,256,314.

23. As per claim 6, Irish and Kloth teach the communication method substantially as claimed in claim 1. Irish and Kloth do not explicitly teach teaches that the first ARP response packet comprises a destination address (DA) field representing the MAC address of the source host a source address (SA) field representing the MAC address of a source port of a switching router, mapped on the source host, a destination IP address (DI) field representing an IP address of the source host, and a source IP address (SI) field representing the IP address of the destination host.

24. Rodrig teaches wherein the first ARP response packet comprises a destination address (DA) field representing the MAC address of the source host, a source address (SA) field representing the MAC address of a source port, of a switching router, mapped on the source host,

a destination IP address (Dl) field representing an IP address of the source host, and a source IP address (SI) field representing the IP address of the destination host (see for example, Col. 14, lines 25-40, Col. 16, lines 30-42, wherein Rodrig's system can learn the incoming requests in a plurality of configurations, furthermore, Rodrig teaches the notion of forwarding requests. In a forwarding system, the switch/router acts as middle relays, the source and destination IP addresses are the actual source and IP addresses of the sender and receiver respectively, and the MAC address changes ms router server places its own MAC address within the request, "The switch writes its own MAC address in the source MAC address field of the packet", it is well known in the art that in network communication the source and destination MAC address is known, however in the case of ARP requests, the destination ARP is not known, in Rodrig, the switch/router is capable of handling ARP requests and make a determination or to learn the communication path, Col. 9, lines 4-22. Thus, ARP configuration of claim 6 is taught by Rodrig's system for the advantage of learning network topology in order to improve speed).

25. It would have been obvious to one of ordinary skill in this art at the time of invention was made to combine the teaching of Irish, Kloth and Rodrig because they both deal with switch router architecture. Furthermore, the teaching of Rodrig to allow wherein the first ARP response packet comprises a destination address (DA) field representing the MAC address of the source host, a source address (SA) field representing the MAC address of a source port of a switching router, mapped on the source host, a destination IP address (DI) field representing an IP address of the source host, and a source IP address (SI) field representing the IP address of the

destination host would improve the latency and intelligence for Irish and Kloth's system by learning the network's topology by studying incoming message fields.

26. As per claim 7, Irish and Kloth teach the communication method substantially as claimed in claim 1. Irish and Kloth do not explicitly teach that the second ARP request packet comprises a destination address (DA) field representing a broadcast MAC address, a source address (SA) field representing the MAC address of a source port, of a switching router, mapped on the destination host, a destination IP address (DI) field representing an IP address of the destination host and a source IP address (SI) field representing the IP address of the source host.

27. Rodrig teaches wherein the second ARP request packet comprises a destination address (DA) field representing a broadcast MAC address, a source address (SA) field representing the MAC address of a source port of a switching router, mapped on the destination host, a destination IP address (Dl) field representing an IP address of the destination host, and a source IP address (SI) field representing the IP address of the source host (As per claim 6, we realize the switch router of Rodrig has the capability of forwarding and learning messages, the IP addresses of source and destination will not be discussed here further. The ARP request would continue to the appropriate VLAN in an attempt to retrieve the proper destination MAC address in order to conduct unicast communications. The notion of changing SA address is changed to the switch router is taught by Rodrig, Col. 14, line 30-33, for the advantage of learning).

28. It would have been obvious to one of ordinary skill in this art at the time of invention was made to combine the teaching of Irish, Kloth and Rodrig because they both deal with switch router architecture. Furthermore, the teaching of Rodrig to allow wherein the second ARP request packet comprises a destination address (DA) field representing a broadcast MAC address, a source address (SA) field representing the MAC address of a source port, of a switching router, mapped on the destination host, a destination IP address (Dl) field representing an IP address of the destination host, and a source IP address (SI) field representing the IP address of the source host would improve the latency and intelligence for Irish and Kloth's system by learning the network's topology by studying incoming message fields.

29. As per claims 10-12, claims 10-12 are rejected for the same reasons as rejection to combination of claims 6 and 7 above.

30. As per claim 14, claim 14 is rejected for the same reasons as rejection to claims 6 above.

31. As per claims 21-22, claims 21-22 are rejected for the same reasons as rejection to combination of claims 5, 6 and 7 above.

32. As per claim 23, Irish, Kloth and Rodrig teach the communication method substantially as claimed in claim 21. Irish further teaches that:

a. the plurality of networks include multiple virtual local area networks (Fig 1);

b. the subnet is an Internet protocol (IP) subnet;

c. the first ARP request comprises a destination address field identifying a media access control (MAC) address of the global destination address, a source address field identifying the MAC address of the source host, a destination IP address field identifying an IP address of the destination host, and a source IP field identifying the IP address of the source host (Col. 7, lines 32-50; Col. 8, lines 12-50).

33. As per claim 24, Irish, Kloth and Rodrig teach the communication method substantially as claimed in claim 21. Irish further teaches that:

a. the plurality of networks include multiple virtual local area networks;

b. the subnet is an Internet Protocol (IP) subnet;

c. the first ARP response comprises a destination address field identifying a media access control (MAC) address of the source host, a source address field identifying the MAC address of the intermediary device's first intermediate address, a destination IP address field identifying an IP address of the source host, and a source IP field identifying the IP address of the destination host (Col. 7, lines 32-50; Col. 8, lines 12-50).

34. As per claim 25, Irish, Kloth and Rodrig teach the communication method substantially as claimed in claim 22. Irish further teaches that:

a. the plurality of networks include multiple virtual local area networks;

b. the subnet is an Internet Protocol (IP) subnet;

c. the second ARP request comprises a destination address field identifying a media access control (MAC) address of the global destination address, a source address field identifying the MAC address of the intermediary device's second intermediate address, a destination IP address field identifying an IP address of the destination host, and a source IP field identifying the IP address of the source host (Col. 8, lines 12-50).

35. As per claim 26, Irish, Kloth and Rodrig teach the communication method substantially as claimed in claim 22. Irish further teaches that:

a. the plurality of networks include multiple virtual local area networks;

b. the subnet is an Internet Protocol (IP) subnet;

c. the second ARP response comprises a destination address field identifying a media access control (MAC) address of the intermediary device's second intermediate address, a source address field identifying the MAC address of the destination host, a destination IP address field identifying an IP address of the source host, and a source IP field identifying the IP address of the destination host (Col. 8, lines 12-50).

36. As per claim 27, claim 27 is rejected for the same reasons as rejection to combination of claims 6-7 above.

Response to Arguments

37. Applicant's arguments with respect to claims 1-28 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

38. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Bare, US 5,920,699.

Yip et al, US 6,914,905.

39. A shortened statutory period for reply to this Office action is set to expire THREE MONTHS from the mailing date of this action.

40. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenny Lin whose telephone number is (571) 272-3968. The examiner can normally be reached on 8 AM to 5 PM Tue.-Fri. and every other Monday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bunjob Jaroenchonwanit can be reached on (571) 272-3913. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ksl
May 10, 2006